

Notice of Allowability**Application No.**

10/715,333

Examiner

Kevin Mew

Applicant(s)

BLASCO CLARET ET AL.

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/27/2008.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 10
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

Detailed Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 10/27/2008 regarding claims 1-22 have been fully considered. Claims 23-25 have been newly added as suggested by applicant. Claims 1-25 are currently pending.
2. Acknowledgement is made of the amended claims 1-22 with respect to the claim objections set forth in the previous Office action. The corrections are acceptable and the claim objections have been withdrawn.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with applicant's representative, Mr. David Jackson, on 1/14/09.

Claims 3, 4, 7, 19-21 have been amended and new claims 23-25 have been added as follows:

3. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 2, [[characterized in that]] wherein the automatic gain control system (10) for the downstream diminishes gain in the receivers of the users (2) in case the number of overflows produced in the ADC receiver surpasses a certain limit, in order to avoid a deterioration in transmission capacity due to overflows which produce a reduction in the S/N ratio.

4. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 2, wherein the automatic gain control system (10) in the downstream increases gain in the user receivers (2) in case overflows are not produced in the ADC receiver during a determined time window, in order to prevent the quantification noise (8) from limiting the S/N (6) in comparison with the amplified line noise ($N_{\text{line}} + G$), where N_{line} is the line noise and G is the gain.

7. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 6, wherein the automatic gain control system (10) for the upstream channel, fixes the gain in reception of the head-end kit (1) in function of the noise on the line (9), therefore the head-end kit (1) measures the power of the noise (9) and adjusts the gain, in order to prevent the quantification noise of the ADC (8) from limiting the S/N (6) in comparison with amplified line noise ($N_{\text{line}} + G$) and in order to enable the use a converter with a reduced number of bits, where N_{line} is the line noise and G is the gain.

19. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to any of Claims 16 to [[18]] 17, wherein the coexistence of various groups of head-end (18) and user kits (2) using the same range of frequencies and time for the communications, is carried out by means of:

- power control in the corresponding signal emission means in both communication channels, downstream and upstream;
- a network topology where the signals from all the user kits (2) first pass by the head-end kit corresponding to their group before arriving to the kits (18,2) that make up another group; and
- measuring attenuation between the head-end kits (18), that reuse the same frequencies and times, by sending information between these head-end kits (18), or by means of communication with a principal head-end kit (1), so that this measure is used to adjust the maximum transmission power possible for the user kits (2).

20. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to any of Claims 16 to [[18]] 17, wherein in the downstream channel all the head-end kits (18) emit at the maximum power possible for communication over the electricity network (S_1, S_2), so that the maximum value for the signal/noise (S/N) ratio (6) in the user receptors will be limited by the attenuation between the head-end kits (L) that reuse the same range of frequencies and times, while if there is a principal head-end (1), that uses another range of frequencies and/or times, it will be this

principal head-end kit (1) that will be responsible for adjusting the different gains required in the various head-end kits (18) by means of channel control and preferably by means of control messages.

21. (Currently Amended) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to any of Claims 16 to [[18]] 17, wherein to guarantee the coexistence of various groups of kits (2) that reuse the same frequencies and times in the upstream communication channel, transmission gain in the user kits (2) is adjusted so that the level of signal power that reaches the head-end (18) of another group, and that would be an interference for this group, is comparable to the level of noise on the line (9).

23. (New) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 18, wherein the coexistence of various groups of head-end (18) and user kits (2) using the same range of frequencies and time for the communications, is carried out by means of:

- power control in the corresponding signal emission means in both communication channels, downstream and upstream;
- a network topology where the signals from all the user kits (2) first pass by the head-end kit corresponding to their group before arriving to the kits (18,2) that make up another group; and

- measuring attenuation between the head-end kits (18), that reuse the same frequencies and times, by sending information between these head-end kits (18), or by means of communication with a principal head-end kit (1), so that this measure is used to adjust the maximum transmission power possible for the user kits (2).

24. (New) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 18 wherein in the downstream channel all the head-end kits (18) emit at the maximum power possible for communication over the electricity network (S_1, S_2), so that the maximum value for the signal/noise (S/N) ratio (6) in the user receptors will be limited by the attenuation between the head-end kits (L) that reuse the same range of frequencies and times, while if there is a principal head-end (1), that uses another range of frequencies and/or times, it will be this principal head-end kit (1) that will be responsible for adjusting the different gains required in the various head-end kits (18) by means of channel control and preferably by means of control messages.

25. (New) Automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, according to Claim 18, wherein to guarantee the coexistence of various groups of kits (2) that reuse the same frequencies and times in the upstream communication channel, transmission gain in the user kits (2) is adjusted so that the level of signal power that reaches the head-end (18) of another group, and that would be an interference for this group, is comparable to the level of noise on the line (9).

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

4. The following is an examiner's statement of reasons for allowance:

The present application relates to providing an automatic gain control system for a digital OFDM multiuser transmission system over the electricity network, comprising a number of user kits (2) and a head-end kit (1) in two-way communication over the electricity network, including the unique functions of:

“carrier by carrier treatment means for received signals in the frequency domain, where a block that compensates an attenuation caused by the channel carries out a scaling in frequency of the received signal and of elements that correct the signal, representing the compensated signal by a floating point and fixing a number of bits of a mantissa to obtain determined maximum precision, or signal/noise ratio defined by carrier,

transmission power (S) control means that control the transmission gains in the head-end and user kits; in order to ensure that the signals sent by the users (2) to the head-end (18) do not interfere in a functioning of other groups of head-end (18) and users (2) that may be using the same frequencies and times.”

The closest prior art, Geile et al. (USP 7,391,711), discloses a OFDM multipoint-to-point communication system that uses both an automatic gain control at the head end and transmitter output or power control at the remote end to achieve the dynamic range and high resolution amplitude control. However, Geile fails to anticipate or render obvious the above quoted limitations of the present application. This renders the claims allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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